wherein the alloy does not contain carbon and molybdenum.

19. The high-mechanical strength copper alloy as claimed in Claim 18, wherein the ratio (a/b) is between 0.8 and 1.5.

REMARKS

With this amendment, Claims 1 and 5 are amended, Claims 3 and 7 are canceled, and Claims 9-19 have been added. Claims 1 to 2, 4 to 6, and 8 to 19 are thus presented for further Examination.

The specific changes to the specification and the amended claims are shown on a separate set of pages attached hereto and entitled VERSION WITH MARKINGS TO SHOW CHANGES MADE, which follows the signature page of this Amendment. On this set of pages, the insertions are underlined while the ~~deletions are stricken through~~.

Rejections Under 35 U.S.C. § 102 and 103

The Examiner has rejected Claims 1-8 under 35 U.S.C. § 102(b) as anticipated by JP 11043731 or, alternatively, under 35 U.S.C. § 103(a) as obvious over JP 11043731 (JP '731). The Examiner has rejected Claims 1, 2 and 4 under 35 U.S.C. § 102(b) as anticipated by JP 06041660 or, alternatively, under 35 U.S.C. § 103(a) as obvious over JP 06041660 (JP '660).

The Examiner asserts that the claimed Cu alloy compositions, grain size, and deformation steps are overlapped by the cited references, and then concludes that the properties recited in the instant claims are inherently possessed by the alloys described in the cited references. Applicants respectfully disagree, and submit that JP '731 and JP '660 do not teach or suggest the alloy as claimed in the present application.

Although the scope of the claimed Cu alloy compositions are overlapped by the cited references, the claims are directed to a narrower range than that of the references.

Table 1 of the present invention shows that the ingot Nos. A to D fall within the claimed range. The ingot Nos. A to D are manufactured into the copper alloy sheets Nos. 1 to 7, according to Example 1. On the other hand, the ingot Nos. E, F, G, J, K, L and M fall within the range of JP '660, without falling within the claimed range. The ingot Nos. E, F, G, J, K, L and M are manufactured into the copper alloy sheet Nos. 8-10, 14-15, 17-18, according to the

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Comparative Examples 2. As described at page 18, lines 21 to 25, the copper alloy sheets of Comparative Example 2 were manufactured in the same manner as in Example 1. However, the copper alloy sheet Nos. 1 to 7, according to the present invention, exhibit excellent properties in all the properties tested, while the copper alloy sheet Nos. 8-10, 14-15, 17-18 of JP'660 do not exhibit excellent properties in all the properties tested.

Similarly, the ingot Nos. E, G, H, I, J, K, and L fall within the range of JP '731, without falling within the claimed range. The ingot Nos. E, G, H, I, J, K, and L are manufactured into the copper alloy sheet Nos. 8, 10-11, 13-15, 17, according to the Comparative Example 2. As described at page 18, lines 21 to 25, the copper alloy sheets of Comparative Example 2 were manufactured in the same manner as in Example 1. However, the copper alloy sheet Nos. 1 to 7 exhibit excellent properties in all the properties tested, while the copper alloy sheet Nos. 8, 10-11, 13-15, 17 do not exhibit excellent properties in all the properties tested.

Thus, the claimed range of the Cu alloy composition, which is narrower than that of the references, has improved properties in all the properties tested, demonstrating unexpected results in the present invention, compared with the references.

In addition, there are no specific examples falling within the claimed range disclosed in the prior art documents, JP '731 and JP '660.

As stated at MPEP 2131.03, "If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with 'sufficient specificity' to constitute an anticipation of the claims. The unexpected results may also render the claims unobvious."

For at least these reasons as well, applicants respectfully submit that Claims 1 and 5 are not anticipated or rendered obvious by JP 11043731 or JP 06041660. Furthermore, Applicants submit that dependent Claims 2, 4, 6 and 8, which ultimately depend on Claims 1 and 5 and therefore include all the limitations of that base claim are also not anticipated or rendered obvious by JP 11043731 or JP 06041660. For at least these reasons, Applicants respectfully request that the rejections be withdrawn.

New Claims

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As indicated above, Applicants have added new claims 9-19. Applicants submit that these new claims also include combinations of features not taught or suggested by JP 11043731 or JP 06041660.

Support for Claims 9-11 can be found at page 8, line 18 – page 12, line 26. Claim 9 depends from Claim 1, and Claims 10-11 depend from Claim 5.

Some of the new claims recite that the crystal grain ratio is between about 0.8 and 1.5. Support for this amendment can be found at page 14, lines 14-16. This limitation is not intended to distinguish the invention from any prior art of record. These claims are merely now limited to certain preferred embodiments of the invention, as it has been found that production of a grain aspect ratio of less than about 0.8 typically requires more complex processing techniques that are rarely advantageous in practice.

Some new claims also include limitations reciting the absence in the alloy of certain elements. Applicants note that the requirements of the first paragraph of 35 U.S.C. §112 are satisfied by the specification as filed with respect to the provisions that the "alloy does not contain carbon", as recited in new independent claims 12-15. In particular, Applicants note that as in *Ex parte Parks (Bd Pat App & Inter, 30 U.S.P.Q. 2d 1234 (1993))*, the requirements of the first paragraph of 35 U.S.C. §112 are satisfied if the originally-filed disclosure would have conveyed to one having ordinary skill in the art that Applicants had possession of the claimed subject matter, even if a particular concept was not literally stated in the originally filed application. In particular, in *Ex parte Parks* the Board of Patent Appeals and Interferences found that the written description requirement was satisfied with respect to a claim limitation specifying that the claimed process was performed "in the absence of a catalyst" despite the fact that those exact words did not appear in the specification as filed because the originally filed specification conveyed to those skilled in the art that applicants had possession of the concept of performing the method in the absence of a catalyst.

One of skill in the art would understand that although the specification does not specifically state that the alloy does not contain carbon, it is clear that the alloy does not contain carbon, based on the teachings of the specification. Since the specification describes an alloy having the claimed alloying elements and a balance of Cu and inevitable impurities, the alloy described in the specification would therefore not be made with other alloying elements. Thus,

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Applicants respectfully submit that these claims are in condition for allowance, and such action is respectfully requested.

CONCLUSION

Applicants have endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. In light of these amendments and remarks, reconsideration and withdrawal of the outstanding rejections is respectfully requested.

Furthermore, the new claims presented above are of course intended to avoid the prior art, but are not intended as replacements or substitutes of any cancelled or amended claims. They are simply additional specific statements of inventive concepts described in the application as originally filed. If the Examiner has any questions which may be answered by telephone, he is invited to call the undersigned directly.

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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 6/12/02

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) A high-mechanical strength copper alloy, ~~comprising~~ consisting essentially of 3.5 to 4.5% by mass of Ni, 0.7 to 1.0% by mass of Si, 0.01 to 0.20% by mass of Mg, 0.05 to 1.5% by mass of Sn, 0.2 to 1.5% by mass of Zn, and less than 0.005% by mass (including 0% by mass) of S, with the balance being made of Cu and inevitable impurities,

wherein a diameter of a crystal grain in the alloy is from more than 0.001 mm to 0.025 mm; and the ratio (a/b), between a longer diameter a of a crystal grain on a cross section parallel to a direction of final plastic working, and a longer diameter b of a crystal grain on a cross section perpendicular to the direction of final plastic working, is 1.5 or less, and

wherein the alloy has a tensile strength of 800 N/mm^2 or more.

5. (Amended) A high-mechanical strength copper alloy, ~~comprising~~ consisting essentially of 3.5 to 4.5% by mass of Ni, 0.7 to 1.0% by mass of Si, 0.01 to 0.20% by mass of Mg, 0.05 to 1.5% by mass of Sn, 0.2 to 1.5% by mass of Zn, and further 0.005 to 2.0% by mass in the sum total of at least one element selected from the group consisting of 0.005 to 0.3% by mass of Ag, 0.005 to 2.0% by mass of Co and 0.005 to 0.2% by mass of Cr, and less than 0.005% by mass (including 0% by mass) of S, with the balance being made of Cu and inevitable impurities,

wherein a diameter of a crystal grain in the alloy is from more than 0.001 mm to 0.025 mm; and the ratio (a/b), between a longer diameter a of a crystal grain on a cross section parallel to a direction of final plastic working, and a longer diameter b of a crystal grain on a cross section perpendicular to the direction of final plastic working, is 1.5 or less, and

wherein the alloy has a tensile strength of 800 N/mm^2 or more.

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